ecology and environment, inc.
Global Environmental Specialists
720 Third Avenue, Suite 1700
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: June 30, 2015

TO: Eric Nuchims, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-4 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Quality Assurance Review, John Day Vapor Response Site, John Day, Oregon**

REF: TDD: 15-05-0005 PAN: 1004530.0004.111.02

The data quality assurance review of three water samples collected from the John Day Vapor Response site in John Day, Oregon, has been completed. Selected Ion Monitoring (SIM) Semivolatile Organic Compound (SVOC) analysis (EPA Method 8270) was performed by TestAmerica, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Electronic and/or Manual Process (S2B/4VE/M).

The samples were numbered:

15053150 15053151 15053152

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of < 6°C. The samples were collected on June 7, 2015, were extracted on June 11, 2015, and were analyzed on June 14, 2015, therefore meeting holding time criteria of less than 7 days between collection and extraction and less than 40 days between extraction and analysis.

2. **Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. **Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) were within the QC limits.

4. **Continuing Calibration: Acceptable.**

All RRFs were within the QC limits. All % differences were within the QC limits.

5. Blanks: Acceptable.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

6. System Monitoring Compounds (SMCs): Acceptable.

All SMC recoveries were within QC limits.

7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Acceptable.

All spike analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within the QC limits.

8. Duplicate Analysis: Satisfactory.

Blank spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except benzo(a)pyrene; the benzo(a)pyrene positive results were qualified as estimated quantities with an unknown bias (JK or UJK).

9. Internal Standards: Acceptable.

All internal standards (IS) were within $\pm$ 30 seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

10. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

11. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

12. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

JH - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a high bias.

JL - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a low bias.

JK - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias.

JQ – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias and falls between the MDL and the Minimum (or Practical) Quantitation Limit (MQL, PQL).

N - The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Client: Ecology and Environment, Inc. Job Number: 580-50631-1

Client Sample ID: 15053150

Lab Sample ID: 580-50631-1
Client Matrix: Water

Date Sampled: 06/07/2015 1500
Date Received: 06/09/2015 1606

8270D SIM Semivolatile Organic Compounds (GC/MS SIM)

Analysis Method:	8270D SIM	Analysis Batch:	580-192076	Instrument ID:	TAC023
Prep Method:	3520C	Prep Batch:	580-191909	Lab File ID:	0614A007.D
Dilution:	1.0			Initial Weight/Volume:	1030.1 mL
Analysis Date:	06/14/2015 1441			Final Weight/Volume:	2.0 mL
Prep Date:	06/11/2015 1459			Injection Volume:	1 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	ND		0.0070	0.019
2-Methylnaphthalene	0.0076	J	0.0058	0.025
1-Methylnaphthalene	0.0068	J	0.0058	0.019
Acenaphthylene	ND		0.0058	0.019
Acenaphthene	ND		0.0058	0.019
Fluorene	0.0064	J	0.0058	0.019
Phenanthrene	0.069		0.0058	0.019
Anthracene	0.015	J	0.0058	0.019
Fluoranthene	0.014	J	0.0058	0.019
Pyrene	0.025		0.0058	0.019
Benzo[a]anthracene	ND		0.0058	0.019
Chrysene	ND		0.0058	0.019
Benzo[b]fluoranthene	ND		0.0058	0.019
Benzo[k]fluoranthene	ND		0.0058	0.019
Benzo[a]pyrene	ND		0.0058	0.019
Indeno[1,2,3-cd]pyrene	ND		0.0058	0.019
Dibenz(a,h)anthracene	ND		0.0058	0.019
Benzo[g,h,i]perylene	ND		0.0058	0.019

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14	89		64 - 150

Client: Ecology and Environment, Inc. Job Number: 580-50631-1

Client Sample ID: 15053151

Lab Sample ID: 580-50631-2 Date Sampled: 06/07/2015 1530
Client Matrix: Water Date Received: 06/09/2015 1606

8270D SIM Semivolatile Organic Compounds (GC/MS SIM)

Analysis Method:	8270D SIM	Analysis Batch:	580-192076	Instrument ID:	TAC023
Prep Method:	3520C	Prep Batch:	580-191909	Lab File ID:	0614A008.D
Dilution:	1.0			Initial Weight/Volume:	941 mL
Analysis Date:	06/14/2015 1503			Final Weight/Volume:	2.0 mL
Prep Date:	06/11/2015 1459			Injection Volume:	1 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	ND		0.0077	0.021
2-Methylnaphthalene	ND		0.0064	0.028
1-Methylnaphthalene	ND		0.0064	0.021
Acenaphthylene	ND		0.0064	0.021
Acenaphthene	ND		0.0064	0.021
Fluorene	ND		0.0064	0.021
Phenanthrene	0.027		0.0064	0.021
Anthracene	ND		0.0064	0.021
Fluoranthene	0.021		0.0064	0.021
Pyrene	0.040		0.0064	0.021
Benzo[a]anthracene	ND		0.0064	0.021
Chrysene	ND		0.0064	0.021
Benzo[b]fluoranthene	ND		0.0064	0.021
Benzo[k]fluoranthene	ND		0.0064	0.021
Benzo[a]pyrene	ND		0.0064	0.021
Indeno[1,2,3-cd]pyrene	ND		0.0064	0.021
Dibenz(a,h)anthracene	ND		0.0064	0.021
Benzo[g,h,i]perylene	ND		0.0064	0.021

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14	93		64 - 150

MW 6/30/15

Client: Ecology and Environment, Inc. Job Number: 580-50631-1

Client Sample ID: 15053152

Lab Sample ID: 580-50631-3 Date Sampled: 06/07/2015 1600
Client Matrix: Water Date Received: 06/09/2015 1606

8270D SIM Semivolatile Organic Compounds (GC/MS SIM)

Analysis Method:	8270D SIM	Analysis Batch:	580-192076	Instrument ID:	TAC023
Prep Method:	3520C	Prep Batch:	580-191909	Lab File ID:	0614A009.D
Dilution:	1.0			Initial Weight/Volume:	875.8 mL
Analysis Date:	06/14/2015 1525			Final Weight/Volume:	2.0 mL
Prep Date:	06/11/2015 1459			Injection Volume:	1 uL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Naphthalene	ND		0.0082	0.023
2-Methylnaphthalene	ND		0.0069	0.030
1-Methylnaphthalene	ND		0.0069	0.023
Acenaphthylene	ND		0.0069	0.023
Acenaphthene	ND		0.0069	0.023
Fluorene	ND		0.0069	0.023
Phenanthrene	ND		0.0069	0.023
Anthracene	ND		0.0069	0.023
Fluoranthene	ND		0.0069	0.023
Pyrene	ND		0.0069	0.023
Benzo[a]anthracene	ND		0.0069	0.023
Chrysene	ND		0.0069	0.023
Benzo[b]fluoranthene	ND		0.0069	0.023
Benzo[k]fluoranthene	ND		0.0069	0.023
Benzo[a]pyrene	ND		0.0069	0.023
Indeno[1,2,3-cd]pyrene	ND		0.0069	0.023
Dibenz(a,h)anthracene	ND		0.0069	0.023
Benzo[g,h,i]perylene	ND		0.0069	0.023

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14	90		64 - 150

MW 6/30/15